

THE CATTLE DISEASE.



ON THE

CATTLE DISEASE.

BY

SURGEON-MAJOR LOGIE,

ROYAL HORSE GUARDS.

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THE CATTLE DISEASE.

LETTERS, theories, suggestions, remedies, daily appear—and properly so—about the Cattle Plague, but the most serious matter connected with the subject is, that the disease has in many countries on the Continent a *permanent home*; yet Professor Simonds, in his able lecture, does not tell us why. He refutes the idea of a spontaneous origin *in toto*, and instantly concludes, because the disease broke out nineteen days after the arrival of some cattle from Revel, that it came in this way among us. Disagreeing, as I do, to a certain extent, with the learned Professor, I confess my surprise that the human as well as the bovine race are not subjected to a greater variety of new diseases than is actually the case. I say disagreeing to a certain extent, because, this Cattle Disease being *highly contagious*, it is quite possible, indeed highly probable, that it was imported from abroad; but, for reasons which

I shall presently give, I am of opinion that it may have been generated here. Look at our fields, look at the wonderful changes in tillage; turn your attention especially to the various kinds of manures applied to immense tracts of reclaimed land, of the component parts of which manures we are in a great measure ignorant. These come from different parts of the globe, and the seeds of our country are sown in new soil—impregnated perhaps with guano, perhaps with bones of all kinds of animals, perhaps with blood. It is true that the crops are heavier from the employment of these *inventions*, and that they still remain wheat, oats, &c.; but is it not possible that there may be a difference in the quality of the produce? Is it not possible that the grass may be changed? May there not be seeds of poisonous plants in the foreign manures? Do not botanists find, occasionally, rare specimens among the ballast-rubbish brought in ships? Look still further. May not the water in the pools (in the dairy countries called “pit-holes,” I believe) be changed by the action of the neighbouring soil and drainage? May not insects be thus introduced of different species from ours, as also animalculi in those pit-holes? Have not one or two

veterinary surgeons died from the effects of poison from some peculiar fly? Did not the long-continued and great heat bring out myriads of flies? Have not those insects deposited their larvæ in all corners of our fields, and have not our cattle grazed in those fields and drunk (and I fear do still drink) the water of those pit-holes? Why, then, should we be surprised at the appearance of an unknown virulent disease? Ah! we little know what flesh is heir to. I might proceed a step further, and compare *our* present state with the words of the Psalmist on idolatry: "They provoked Him to anger with their own inventions, and the plague was great among them." In conclusion, with regard to its origin in this country, I am of opinion that the soil is so charged with foreign matter, so changed from what it formerly was, that, were we subjected to a tropical sun for forty-eight hours, our fields would become a mass of creeping things, and a pestilence be the result. Then, under the existing condition of agriculture, may there not be a probability of this disease finding a permanent home with us? and, judging from the nature of the soil, might we not fully expect its head-quarters in the dairy countries, —the nearest approach, perhaps, to the steppes of

Russia? I am not versed in the statistics of this disease; but I think (from what I have observed) it would be interesting to mark its ravages *geologically*, although this would probably furnish no conclusive data, owing to atmospheric influence in regard to gales of wind. However, while travelling by rail through parts of Scotland and England, I could not help observing in some places an almost total absence of flies; and here I remarked the cottages were whitewashed, which led me to suppose that we were passing through a limestone district. Whether the Cattle Plague has been less severe in such districts than in others, I am not quite certain.

Having hinted at the probable agency of poisonous animalculi in generating this disease, let us turn to its pathological appearances for further guidance. On dissection, in the case of a very severe form of Rinderpest, so called, we find the mouth congested and ulcerated, as well as the fauces; the first stomach scarcely altered (perhaps one case in forty); the second stomach not changed; the third stomach intensely congested,—in fact, one mass of disease; the fourth stomach, ditto; as also all the mucous membranes of the intestinal canal, the genital and

urinary organs. In the third and fourth stomachs alone we find sufficient cause for death. Among the first symptoms of the disease are drooping of the head, dulness, and loss of appetite—"she is off her feed." Now there are three methods by which the disease may be communicated: first, by the poisonous agent being actually swallowed with the food; secondly, by inhalation directly into the lungs of poisonous particles floating in the air from the districts where they are generated; and thirdly, by actual contact with the saliva or excretion of a diseased animal. These several modes of attack necessarily produce varieties in the symptoms. This being the case, I am inclined to vote the recommendation of a general "stamping out" a melancholy display of ignorance, and to apply the same term to the abuse of the present Government for want of activity in suppressing the disease, and for neglect as to its prevention: I do not think that even Lord Derby could have prevented the flies from depositing their larvæ, or the winds from carrying the poisonous particles; but a voice might whisper, that my Lord Russell may, in a measure, control the importation of foreign manures. We must look forward to

another and another hot summer, and I fear already the excrements of the diseased animals are being spread out upon our fields.

We see then in the gums a streak of inflammation, which spreads to the roof of the mouth and to the throat; but these marks, I observe, fade considerably in some cases about the third day. Why then do the first and second stomachs escape, or rather remain unchanged in appearance? Possibly from the fact of the poisonous matter being now in a pulp; and in a pouch of enormous size, and full of food (two or three bushels), it may remain so, and pass to the second stomach, without producing any effect on the strong coats of these two pouches; but when it arrives at the orifice of the third, or true stomach, after rumination, the more sensitive lining membrane of this organ may instantly become affected, and absorb the poison into the blood, and, when once in the blood, it is unnecessary to say that this virulent agent, rushing to all the mucous membranes so connected, is quite sufficient to cause death in a very short time, making the greatest havoc among those membranes which had been previously affected by former disease; for instance, if the cow had had

cough some time before, I should expect to find great congestion of the lungs in that particular animal,—and so on.

You may now gather what is meant by the period of incubation—the time that elapses from the moment the animal looks languid, dull, and loathes its food, to that when the poisonous agent reaches the third stomach. (In cases of attack by inhalation alone, where the poison gets to the blood directly through the lungs, this period must be shorter.) This is the time lost by stock-owners ;—to be plainer, from the time the animal droops her head, until she shows visible signs of disease, inflammation of vulva, &c.: because, in my opinion, when once the blood is charged with the poison, effusion takes place by decomposition, and absorption through the mucous membranes of the stomach or intestines is at an end ; and any attempt to reach the scene of action (the third stomach), in time, by the mouth, is hopeless. In fact, one cause of the general failure of attempts at treatment I believe to be the partial or complete stoppage then of the function of absorption in the congested mucous membranes of the stomach and intestinal canal ; and to the same physico-vital cause I have long ascribed the failure of attempts at treating

the more malignant forms of cholera. This being the case, other methods must be resorted to, of which I shall speak when we come to the treatment of the disease.

As to the nature of this Cattle Plague—Rinderpest, so called—it is a blood disease, allied, when fully developed, with what was formerly called “Putrid Fever;” the tendency to the decomposition of the animal fluids giving rise to the accumulation of gases under the skin, the peculiar smell, &c. &c. I do not think it is identical with Small-pox,—first, from the absence of anything like true pustule; secondly, from the difference in the morbid condition of the mucous membranes; and, thirdly, assuming the correctness of the views heretofore held with respect to the nature of Cow-pox, viz. that it is really Small-pox modified and mitigated by transmission through the cow,—a view supported by direct experiments,—it is very difficult to understand how the matter of Small-pox can give rise to the peculiar and very different symptoms of Rinderpest.

I am inclined to divide the disease into the three classes of Mild, Severe, and Hopeless.

1st, the *Mild* form.—The animal may have

received a very small dose of the poison into the lungs: for instance, by a passing gust of wind carrying the floating particles from an infected district; or perhaps by having swallowed a small quantity of them. In this case, if the blood has been already charged with another poison (suppose vaccination), the animal will recover.

2nd, the *Severe* form.—The dose of poison may be so strong as to produce symptoms analogous to diphtheria in some, whilst in others the usual train of symptoms occur, inflammation of vulva, rectum, &c. &c.

The 3rd, or *Hopeless*, form of the disease presents a combination of all the foregoing symptoms in their severest and most malignant type, accompanied by stertorous breathing, viscid discharge from vagina, distension of abdomen, moaning and panting: yet the lung symptoms are not always present.

All remedies having hitherto failed in curing this blood disease, prevention by all means in our power must be tried; and one other method suggests itself to my mind, viz., to endeavour to change the nature of the disease by chemical means. Everything during the epidemic rests on three points:—1st. Precaution as to every morsel of food and drop

of water given to the animals, and also as to the air they breathe. 2nd. Prevention of contact. 3rd. Preparing the system to conquer the disease when once, through neglect of some necessary precaution, attacked. Cleanliness and ventilation are, as everybody knows, the principal keys to health; but, in spite of these, in the case of Miss Burdett Coutts's dairies, the disease entered and made great havoc. Nevertheless, these two points must be attended to, and are indeed essentially necessary.

First, then, as to *Food, Water, and Air*. I should recommend all the food to be sprinkled with water impregnated with iron. The water given to the animals should be from a well, off gravel, pumped, or from a clear running stream; I prefer the former. The byres should be fumigated by means of burning sulphur or chlorine gas; a frame-work of some gauzy material, or, what is cheaper, matting, to be placed in the doorway; this matting to be kept saturated with a solution of chloride of lime, and to be always on that door from which the wind blows. An easily managed disinfectant is to be obtained by putting two or three ounces of hydrochloric acid into a wide-mouthed bottle, and dropping into it from time to time, once in a day or two, a little chlorate

of potass, just sufficient to keep up an odour like burnt sugar. The stalls should be constantly cleansed; the chloride of lime or chloride of manganese,—a waste product in many chemical manufactories,—to be used as a disinfectant, by being scattered along the sheds with a dredger, behind the animals; the noses and hoofs of the beasts to be washed with vinegar and water; and, lastly, good and high feeding should be adopted.

I have conversed with several gentlemen in Cheshire whose cattle have escaped, and I have found that the water given to the beasts has been from wells: one gentleman in particular, whose cattle are healthy, had *only a wall* dividing his stock from a byre in which upwards of 60 cattle died.

2. *Prevention of Contact.*—This is a most difficult point to carry out in farms, and the ignorance displayed is truly distressing to veterinary surgeons. If a cow catches a cold, the disease is suspected; fear of punishment causes the Inspector to be sent for; and if the animal has *not* got the disease, it is not the Inspector's fault if she does not get it. How is this to be avoided? By removing instantly the suspected animal, and killing it. But if a second or third is taken ill, the farmer may then reasonably

suspect that the actual disease is in his shippons, and should lose no time in sending for aid. I could relate several deplorable instances of ignorance under the head of "Prevention of Contact," but they would occupy too much space and time: however, one instance I may be allowed to give. I found a good honest farmer in a shippon giving a cow a dose of laxative medicine out of a horn from which he had just given physic to a dying animal. He said, "Sir, I disinfected myself before I came in here." "Let me see you do it again." He washed the tips of his fingers in a little cold water, poked a feather into some carbolic acid, streaked it two or three times across the front of his trowsers, and then looked at me, a perfect picture of satisfaction. In a word, isolation must be complete.

3. *Preparing for the Attack.*—Under this head I may venture some remarks on the all-absorbing topic of vaccination, which is as much cried down now as it was considered essentially necessary a few days ago; in fact, a "Will-o'-the-wisp" was caught apparently. In my opinion, vaccination is an important adjunct to other preventive measures, but only in this way: I do not think two poisons can enter the same system at one and the same time.

Vaccination is a poison which is controllable ; but how long its effects will continue in a cow (when given in a homœopathic dose from the mitigated virus of a baby) is a secret. Vaccination has never been known to do harm to stock ; therefore I should feel inclined to revaccinate, from the same source and in the same way, every fortnight or three weeks during the epidemic. To the elimination of this poison in its homœopathic dose, I in a great measure attribute the death of Mr. Tollemache's calf, which was put to a very severe test. It would be well also to regulate the bowels of all the cattle ; a dose of some laxative oil (linseed) would be of use.

Having now given some rules as prophylactic measures, and hinted at what is likely to happen from another and another hot summer—particularly when I hear of partridges' eggs on the 24th of January, and slow-worms killed basking in the sun the day after Christmas-day—I proceed to the treatment of the actual disease. This I shall divide into,—1st, the treatment of an animal when newly attacked ; and, 2nd, when the disease is fully developed, and what I have previously called *Hopeless*. Before proceeding further, I must again urge upon farmers the danger of delay—not an instant

must be lost; in truth, during the prevalence of this scourge they should take their motto from 'Bell's Life,' "Nunquam dormio."

1. The moment a cow is taken ill, I advise a pint of linseed-oil to be given with a drachm of Santonine in it (half the quantity of oil if the animal has had a purgative previously); and after free purgation, the following mixture:—

Decoction of *Saracinea Purpurea*, 4 oz.

Tincture of Sesquichloride of Iron, $1\frac{1}{2}$ dr.

To be repeated every two hours for the first six hours, and afterwards every three or four. The animal to be clothed warmly; the diet to be well cooked and given in small quantities at a time, to be composed of boiled turnips, bran, and pease-meal, and every morning and evening some oatmeal gruel, well boiled as a drink (in water), with an ounce of a solution of carbonate of ammonia (of the strength of five ounces of carbonate of ammonia to a pint of water) in each drink; care being taken to *avoid* giving the ammonia directly after the medicine (let an hour, at least, elapse); and should the animal refuse food altogether, the gruel to be administered by bottle, night and morning, an hour or two after the medicine. When the cow begins to chew her cud

and eat, the mixture should be given once a day only, and should shortly be replaced with some good ale daily till complete recovery.

Non-professional but interested persons will, no doubt, be anxious to know something of the two remedies I have suggested. They are both uncommon; yet one is a very, very old medicine. Santonine is the active principle of the *Artemisia Santonica*, or worm-seed, and all depends on the mode of its administration; by itself it is, comparatively speaking, useless, but in conjunction with castor-oil, as recommended by Kuchenmeister, it is an excellent medicine in worm affections, particularly for children. Having seen good effects from this simple remedy, I was induced to administer it through the mouth, for the destruction of the poisonous animalculi which I supposed to exist in this Cattle Disease, and with good effect.

The *Saracinea Purpurea*, or Pitcher Plant, is a native of North America, and was first imported into this country by Mr. Miles, Surgeon of the Royal Artillery, who introduced it into Messrs. Savory and Moore's establishment in Bond Street, and from whom only it can be obtained. The root is the most efficacious part; and having used it in form of decoc-

tion, some three years ago (as recommended by Mr. Miles), with much success, in several cases of Small-pox,—having carefully marked its different effects in that disease on the human subject,—and having seen its wonderful influence on the blood in changing the character of Small-pox, I determined to try its effect on this blood disease in cattle. I have done so; and although, from want of leave of absence from my regiment, and a sufficient number of cases, I am unable to establish it as a perfect remedy in combination with the other means I have adopted, I yet feel convinced that the treatment I employed is worthy of a fair trial. The effects I have marked are these:—The cattle taking the *Saracinea* seemed to suffer no pain; their breathing was easy, the inflammatory symptoms and appearances soon lessened, the urine increased in quantity; and about the second or third day purging came on, which I allowed to continue for some time, and if it did not cease it was easily controlled by a dose of opium. These results, I again observe, I have noted in the cases that came under my observation.

2. Now, as regards the second, or fully developed stage of the disease. Here I distinctly see traces of the third stomach having been attacked, or of the

poisonous particles having entered the blood by the air cells, in form of inhalation direct. I should be here inclined to introduce remedial agents into the blood-vessels, either by injecting them in a liquid form under the skin by means of a syringe through small openings in the integuments, or by injecting fluids into the veins: either of these modes will ensure actual contact of the remedy with the mass of diseased blood, and much might be said in support of this view. The transfusion of the blood of healthy animals also suggests itself in connexion with this subject.

There can be little difference of opinion as to the propriety of selecting the substances named from the two great classes of antiseptics and stimulants. Among the former, in addition to the alkaline sulphites and hyposulphites, are the compounds of chlorine, iodine, and bromine, with potash and soda; also the hypochlorous acid formed by the addition of the sulphate of zinc to a solution of bleaching-powder. It comes now to a question of *£. s. d.*, should the farmer be negligent enough to permit the cattle under his very eye to become severely attacked before using the prescribed remedies. I was told of the case of a farmer having a cow, valued

at 11*l.*, which died, and he had to pay a veterinary surgeon's bill amounting to 12*l.* or 13*l.* A recommendation to use the pole-axe in this case would have been good pecuniary advice, but not scientific advice.

So far my opinion has been given as to treatment, &c.: I now beg to add recommendations for the extermination of this disease by removing the cause; which being effected, the natural result may reasonably be expected. Stop the importation of foreign manures; scatter lime over the fields, and let it be thrown into pit-holes and ditches; I should also recommend the application of lime in a liquid form to grass, &c., and the free use of the plough. One remark I may now make on the stamping-out system, already alluded to. I believe the pole-axe will succeed in some districts—perhaps the limestone districts (Ireland probably)—where there have been no larvæ deposited or animalculi to any extent; but I question much if the disease will not appear again and again, through currents of air conveying poisonous particles from neighbouring districts.

At the commencement of this Essay I stated that I was surprised that the human as well as the bovine race are not subjected to a greater variety of new

diseases than is found to be the case. My reason for including the human race is this :—at a lecture given by a veterinary surgeon of great talent and authority, I heard him say, in reference to the disease called Pleuro-pneumonia, so prevalent a short time ago in our London cow-sheds, that he did not object to cattle being killed in the first stage of that disease, and the meat eaten. Now, I confess that, as a listener merely, the very idea of diseased meat made me shudder ; but as a medical man, and knowing that pulmonic diseases, from whatever causes, exhibit the blood in the most inflammatory state in the first stage, and knowing also that John Bull prefers his roast beef or beef steak, in common phraseology, “ underdone,” the privilege made me feel uncomfortable. Only fancy swallowing the blood of a diseased animal in an uncooked state,—one might, although not a vegetarian, refer to the words of Shelley ; and this might open a wide field for speculation to scientific men on the subject of crimes, as well as of mania : in fact, if such freedom of opinion is entertained by men of high authority as regards eating meat in the first stage of Pleuro-pneumonia, to what extent will it not be carried by ignorant butchers ? particularly as it seems impossible to define the exact moment

when the first stage of that disease passes into the second.

If, then, our children are fed on impure milk, and when grown up eat the blood of diseased animals, what room is left for surprise at new forms of disease? in short, what will the human race come to?

In conclusion, as regards the possibility of this Cattle Disease acquiring a permanent home, it is for those in authority,—assuming my views to be correct,—to take measures for changing the nature of the soil and quality of the water, and thus to “stamp out” the means of generating the pest.

“Sublata causa tolletur effectus.”

COSMO GORDON LOGIE,

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